

ECONOMICS INFORMATION



Vegetable Crops Estimated Production Costs Ontario, 1984

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INTRODUCTION

Since 1948, the Economics and Policy Coordination Branch has carried out comprehensive studies of major field and horticultural crops grown in Ontario. These studies were designed to determine costs and returns of various farm enterprises as well as the physical amounts of production inputs required.

Traditionally, data was collected by means of farmer interviews. Published reports of these studies in the form of county, regional and provincial averages found a wide distribution among extension and research personnel, educational institutions, farm organizations, lending institutions and policy-makers. Cooperating farmers received reports showing their individual information in comparison with group averages.

With this extensive background in the development of cost studies, the Economics and Policy coordination Branch has begun to use computers in the preparation of production cost data. Methods of computer simulation have now replaced the time consuming process of data collection, tabulation and analysis.

With this new approach, special attention is paid to the physical quantities and prices of inputs for each crop studied. The technology used in the production of various crops is carefully examined so that the computer models accurately reflect the appropriate production technology for each commodity.

Information on physical inputs is obtained from a number of sources including:

1. previous studies done by this branch.
2. surveys of the farm supply trade.
3. technical input//output coefficients.
4. the consensus of producers, research, extension and agribusiness personnel.

THE DEVELOPMENT OF THE ACRES PROGRAM

A large number of computer programs that generate budgets and crop production cost estimates are now in existence. These computer programs vary in their degree of sophistication and in the amount of detail prepared. A large number of estimates covering a wide range of conditions can be generated quickly and efficiently. The effect of varying levels of technology, management practices and price levels can also be analyzed.

Cost of production estimates used in this report are based on the ACRES program. ACRES (Agricultural Crop Enterprises System) is a FORTRAN program originally written in Montana, adapted by Alberta Agriculture and recently modified and rewritten by the Economics and Policy Coordination Branch to meet Ontario conditions. All 1984 cost of production estimates in this report, are based on these computer models.

METHODS AND PROCEDURES USED IN PREPARING THE CROP PRODUCTION COST ESTIMATES

The information used in the preparation of each production cost estimate in this report was prepared through the use of recent Economics and Policy Coordination Branch studies, plus consultations with producers, extension, research and agribusiness personnel.

For each crop cost estimate in this report, the data was organized into variable and fixed costs and totalled to arrive at the cost of production both on a per acre and per hectare basis. Variable costs are those which vary directly with the production of each crop grown. They include seed, plants, hired labour, fertilizer, herbicides, insecticides, fungicides, other materials, machinery operating costs, marketing charges and interest on operating capital. Fixed cost inputs are operator labour, management allowance, interest on land, machinery, buildings, depreciation on machinery and buildings, taxes on real estate (net on farm tax rebate), and other overhead cost items.

III

In this report, cash costs of production are also determined. Cash costs include total variable costs, interest on the debt portion of investment in tractors and machines, taxes and other overhead costs.

For each crop, operational costs including labour, tractor and machine costs are shown on a per acre and per hectare basis. Where an operation was performed more than once, the total cost for labour, tractor and other equipment represent the total cost of the multiple operations.

LABOUR HOURS AND COSTS

The required number of labour hours was based on previous studies as well as through discussions with those familiar with the production of each study crop. For those crops which required labour for harvesting and marketing in proportion to yields obtained, labour hours and costs reflected the yield in the cost estimate.

The operator labour hours were valued at \$6.50 per hour. In addition, an allowance to management was made at the rate of 5 percent of the gross income.

The hired labour cost was calculated on a per hour basis and included benefits such as workmen's compensation, unemployment insurance, and the Canada Pension Plan. The rates varied according to area, crop and skill involved.

For some crops, piece work rates were used which were suggested by local farm labour pools. An allowance of 15 percent of basic earnings was added to cover benefits.

MATERIALS

The amount of each material input was based on commonly used practices.

IV

Input prices were based on averages charged by the trade in the area where the particular crop was grown.

For most crops, the quantities of seed, plants, fertilizer nutrients and other inputs are given on a per hectare basis.

Because of the multitude of products available, pesticides are grouped as herbicides, insecticides, fungicides, nematocides, etc.

The cost and quantity of non-returnable containers was reported where applicable.

TRACTORS, MACHINES AND TRUCKS

Machinery complements used in the various crop production cost estimates were assumed to be five years old.

Tractor and machine costs included depreciation, interest on investment, insurance, storage, repairs, maintenance, fuel and lubrication. If machines were used for other farming operations, costs were adjusted based on the proportion of use on the study crop.

The declining balance method of depreciation was used, and a 15 percent rate to powered and a 10 percent rate to non-powered machines was applied.

To calculate interest on machinery investment, it was assumed that the equity portion was 70 percent and the debt portion was 30 percent of the total depreciated value.

For this report, interest on equity was calculated at 7.75 percent which was the average interest rate paid by chartered banks on savings accounts. The interest on the debt portion was based on the average prime rate of 12 percent plus one for a total of 13 percent.

Insurance and storage costs for machinery were based on 1.5 percent of their purchase price.

Repair and maintenance costs for individual machines, were based on the factsheet "Cost of Owning and Operating Farm Machines", Agdex 925, Ontario Ministry of Agriculture and Food.

Fuel costs were based on the size of each tractor, truck or self-propelled machine used in the production cost estimates. The following farmgate fuel prices were used: Gasoline 36.5¢/litre; Diesel 36.5¢/litre. The cost of oil, grease and filters was calculated at 15 percent of the fuel cost.

CUSTOM FARMWORK SERVICES

There are crops produced in Ontario where it is an accepted practice to use custom farmwork services to perform certain operations. Usually, these services are employed when the farmer needs specialized machines such as harvesters, sprayers, fertilizer applicators and trucks. Most of these machines cannot be economically owned and operated by one producer. Custom costs were itemized on a per hectare or per acre basis.

LAND CHARGES

Determining the annual cost for land use is a controversial part in any study on production costs. During the past two decades, purchasers of farmland have been willing to pay more for it than can be justified from agricultural production. Purchasers believe the speculative aspect of land ownership offers benefits above those received from crop production. For this reason the appropriate interest rate used in calculating the interest cost on bare land for these crop production estimates was the real interest rate. The "real interest rate" is defined as the current lending rate of interest adjusted for inflation.

In this report, interest on land investment was calculated as follows:

1. The value of bare land was based on the average value for land in areas of Ontario where the production of each study crop predominates.
2. The interest rate applied was the current lending rate discounted for the rate of inflation which resulted in a 7.1 percent rate.

The farm real estate taxes used for each study crop reflect the area of production and are subject to Ontario's Farm Tax Reduction.

BUILDING COSTS

For those crops where buildings are used in grading, packing, and/or storage, a building cost allowance was made.

The initial cost of these structures was based on the assumption that buildings were five years old.

Depreciation:	steel and concrete structures	2.5%
	wood structures	5.0%
	greenhouses	2.0%

The interest on building investment was set at 7.1 percent which was also used in calculating interest on land investment.

Taxes on farm buildings were covered by real estate taxes.

Repairs and maintenance:	steel structures	1.0%
	concrete structures	0.25%
	wood structures	1.5%

Insurance: 0.5% of initial cost.

The cost of machine housing was covered under tractor and machine costs.

VII

Allowances are made for the use of picking baskets, storage bins, and other pieces of reusable equipment required in the production of certain crops.

INTEREST ON OPERATING CAPITAL

Interest on operating capital required to finance each study crop was calculated from the time an expenditure was made until the time income was generated from sales. Operating capital includes the cost of materials, fuel, repairs, hired labour and other cash items. In this study, the interest rate applied to operating capital was the average prime rate plus 1 percent or $(12\% + 1\%)$.

OTHER OVERHEAD

This allowance covers such items as the study crop's share of utilities, accounting and administration costs, use of the farm automobile, and general farm maintenance.

OTHER COST CONSIDERATIONS

Depending on the crop studied, there are certain additional cost factors such as crop insurance, marketing board fees, grading charges and selling commissions.

YIELDS AND RETURNS

For each study crop presented in this report, a footnote to the table defines how the average yield and average price were calculated.

Additional information on average yields and prices is shown in the Appendix of this report.

GROSS MARGIN ANALYSIS

Gross margin is the amount above the variable costs that a crop contributes to the operator for his wages, management, and to the investment in machinery and land.

CASH ANALYSIS

The cash analysis section estimates the returns over cash costs. Cash costs comprise all variable costs as well as interest on the debt portion of tractor and machine investment, real estate taxes and other overhead costs.

TABLE 1. FRESH MARKET CABBAGE: ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 161 hours/hectare	785	318
Plants, 21,000/hectare	475	192
Fertilizer: N - 169 kg/ha, P ₂ O ₅ - 225 kg/ha, K ₂ O = 112 kg/ha	321	130
Herbicide	18	7
Insecticides	162	66
Crates, non-returnable, 1,619/ha	1,942	786
Tractor & machine costs:		
- repairs & maintenance	20	8
- fuel	74	30
Interest on operating capital	123	50
TOTAL VARIABLE COSTS	3,920	1,587
FIXED COSTS		
Operator labour, 21 hours/hectare	144	58
Management allowance, 5% of gross income	263	106
Tractor & machine costs:		
- depreciation	67	27
- interest on investment	48	19
- insurance & storage	25	10
Interest on land, \$4,942/ha @ 7.1% per annum	351	142
Taxes	18	8
Other overhead	37	15
TOTAL FIXED COSTS	953	385
TOTAL COSTS^a	4,873	1,972
	166.88/tonne	151.69/ton
Average yield: 29.2 tonne/hectare, 13.0 ton/acre		
Average price: \$180.15/tonne, \$162.50/ton		
GROSS MARGIN ANALYSIS^b		
Gross income	\$5,260	\$2,113
Total variable costs	\$3,920	\$1,587
Gross margin	\$1,340	\$ 526
CASH ANALYSIS^b		
Gross income	\$5,260	\$2,113
Cash costs ^c	\$3,995	\$1,618
Returns over cash costs	\$1,265	\$ 495

^a Storage costs not considered.

^b Five-year average yields 1978-82 and two-year 1981-82 average price used in this analysis.

^c Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$20/hectare (\$8/acre) plus taxes and other overhead costs.

TABLE 2. FRESH MARKET CABBAGE: OPERATION COSTS, ONTARIO, 1984

Operation	Times over	Labour Hours		Labour, tractor and Machine costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Plowing	1	.99	.40	27.97	11.32
Discing	1	.49	.20	13.12	5.31
Spread fertilizer	1	.37	.15	6.30	2.55
Spray herbicide	1	.37	.15	6.67	2.70
Cultivating and level	1	.99	.40	25.20	10.20
Haul plants	a	1.23	.50	24.07	9.74
Planting	1	29.60	12.00	278.83	112.84
Spray insecticides	5	1.85	.75	33.48	13.55
Row cultivating	1	.49	.20	8.70	3.52
Row cultivating and sidedressing	1	.49	.20	9.69	3.92
Hand hoeing (labour only)	1	17.30	7.00	77.84	31.50
Harvest & pack (labour only)	a	124.00	50.00	617.76	250.00
Load & haul to market	a	4.94	2.00	32.12	13.00

^a Operation performed as required.

TABLE 3. FRESH MARKET CARROTS: ESTIMATED COST OF PRODUCTION, ON MUCK SOILS,
ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 43 hours/hectare	218	88
Seed, pelleted, 1,700,000/hectare	392	159
Fertilizer, N - 72 kg/ha; P ₂ O ₅ - 28 kg/ha;		
K ₂ O - 140 kg/ha	163	66
Herbicides	133	54
Insecticides	68	27
Fungicides	156	63
Tractor and machine costs:		
- repairs and maintenance	303	123
- fuel	92	37
Pallet box repairs	31	13
Storage building repairs	50	21
Electricity in storage	53	21
Interest on operating capital	141	57
TOTAL VARIABLE COSTS	1,800	729
FIXED COSTS		
Operator labour, 36 hours/hectare	240	97
Management allowance, 5% of gross income	346	140
Tractor and machine costs:		
- depreciation	361	146
- interest on investment	302	122
- insurance and storage	161	65
Pallet box use	711	288
Storage building, interest & depreciation	682	276
Interest on land, \$17,297/ha @ 7.1% per annum	1,228	497
Taxes	49	20
Other overhead costs	37	15
TOTAL FIXED COSTS	4,117	1,666
TOTAL COSTS^a	5,917	2,395
	94.22/tonne	85.54/ton
Average yield: 62.8 tonne/ha; 28.0 ton/acre		
Average price: \$110.17/tonne; \$100.00/ton		
GROSS MARGIN ANALYSIS^a		
Gross income	6,919	2,800
Total variable costs	1,800	729
Gross margin	5,119	2,071
CASH ANALYSIS^b		
Gross income	6,919	2,800
Cash costs ^c	2,011	814
Returns over cash costs	4,908	1,986

^a Carrots delivered to shipper in bulk bins, no grading and packaging costs are included.

^b Five-year average yields 1978-82 and two-year average prices (1981-82) are used in this analysis.

^c Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$125/ha (\$50/acre) plus taxes and other overhead costs.

TABLE 4. FRESH MARKET CARROTS ON MUCK SOILS: OPERATION COSTS, ONTARIO, 1984

Operation	Times over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Fall discing	1	.99	.40	26.24	10.62
Deep cultivating, fall	1	1.24	.50	30.12	12.19
Spring discing	1	.99	.40	26.24	10.62
Spread fertilizer	1	.62	.25	11.69	4.73
Deep cultivating	1	1.24	.50	30.12	12.19
Spray herbicide	2	.99	.40	19.60	7.93
Disc and level	1	.99	.40	27.36	11.07
Seeding	1	2.47	1.00	64.97	26.29
Spray (carrot weevil)	1	.99	.40	72.16	29.20
Spray (rust fly)	2	.99	.40	19.60	7.93
Spray (carrot weevil & blight)	2	.99	.40	19.60	7.93
Spray herbicide	1	.49	.20	9.78	3.96
Spray control (blight)	6	2.97	1.20	58.66	23.74
Hand weed	1	6.18	2.50	27.80	11.25
Row cultivate & sidedress	1	2.47	1.00	52.73	21.34
Row cultivate	1	2.47	1.00	47.74	19.32
Combine	1	18.50	7.50	471.19	190.68
Hauling and unloading at farm storage	1	24.70	10.00	322.92	130.68
Load for market	1	7.41	3.00	64.25	26.00
Haul to market	1	2.47	1.00	39.74	16.08

TABLE 5. FRESH MARKET CAULIFLOWER: ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 321 hours/hectare	1,554	629
Plants, 21,000/hectare	346	140
Fertilizer, N - 162 kg/ha, P ₂ O ₅ - 198 kg/ha,		
K ₂ O - 198 kg/ha	284	115
Herbicides	17	7
Insecticides	223	90
Tying bands	71	29
Crates, non-returnable, 1,483	1,779	720
Tractor and machine costs:		
- repairs and maintenance	48	20
- fuel	167	67
Interest on operating capital	146	59
TOTAL VARIABLE COSTS	4,635	1,876
FIXED COSTS		
Operator labour, 32.5 hours/hectare	211	86
Management allowance, 5% of gross income	315	127
Tractor and machine costs:		
- depreciation	136	55
- interest on investment	102	41
- insurance and housing	37	15
Interest on land, \$4,942/ha @ 7.1% per annum	351	142
Taxes	19	8
Other overhead	37	15
TOTAL FIXED COSTS	1,208	489
TOTAL COSTS^a	5,843	2,365
	286.42/tonne	259.89/ton
Average yield: 20.4 tonne/ha, 9.1 ton/acre		
Average price: \$308.56/tonne, \$280.00/ton		
GROSS MARGIN ANALYSIS^b		
Gross income	6,295	2,548
Total variable costs	4,635	1,876
Gross margin	1,660	672
CASH ANALYSIS^b		
Gross income	6,295	2,548
Cash costs ^c	4,725	1,913
Returns over cash costs	1,570	635

^a Cauliflower is packed into crates at the farm before being hauled to shipper.

^b Five-year yields 1978-82 and two-year average prices 1981-82 are used in this analysis.

^c Cash costs include total variable costs plus interest on debt portion of investment in tractors and machines of \$34/ha (\$14/acre) plus taxes and other overhead costs.

TABLE 6. FRESH MARKET CAULIFLOWER: OPERATION COSTS, ONTARIO, 1984

Operation	Times Over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Plowing	1	.99	.40	27.97	11.32
Discing	1	.49	.20	13.12	5.31
Spreading fertilizer	1	.62	.25	11.69	4.73
Spraying herbicide	1	.37	.15	7.31	2.96
Cultivating and harrowing	1	.49	.20	12.70	5.14
Hauling plants	a	2.47	1.00	48.18	19.50
Planting	1	29.60	12.00	295.74	119.68
Row cultivating	2	2.47	1.00	47.74	19.32
Hand hoeing (labour only)	1	37.10	15.00	166.80	67.50
Spray insecticides	5	1.85	.75	36.67	14.84
Row cultivating and sidedressing fertilizer	1	.49	.20	10.55	4.27
Tying heads	1	86.50	35.00	389.19	157.50
Harvesting (labour only)	a	185.00	75.00	926.64	375.00
Loading and hauling to market ^b	a	24.70	10.00	350.02	141.65

^a Operation performed as required.

^b Hauling to market by use of a truck.

TABLE 7. FRESH MARKET CELERY (HAND HARVEST): ESTIMATED COST OF PRODUCTION,
ON MUCK SOILS, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 1,055 hours/hectare	5,077	2,054
Seedlings, 30,000/hectare	556	225
Fertilizer, N - 229 kg/ha; P ₂ O ₅ - 111 kg/ha;		
K ₂ O - 334 kg/ha	555	225
Herbicide	81	33
Insecticides	128	52
Fungicides	170	69
Crates, non returnable, 2,470	2,965	1,200
Tractor and machine costs:		
- repairs and maintenance	337	136
- fuel	145	59
Building repairs, greenhouse and packing shed	62	25
Interest on operating capital	327	132
TOTAL VARIABLE COSTS	10,403	4,210
FIXED COSTS		
Operator labour, 305 hours/ha	1,985	803
Management allowance, 5% of gross income	753	305
Tractor and machine costs:		
- depreciation	265	107
- interest on investment	171	69
- insurance and storage	74	30
Interest on land, \$17,297/ha @ 7.1% per annum	1,228	497
Building use, greenhouse and packing shed	120	49
Taxes	37	15
Other overhead costs	37	15
TOTAL FIXED COSTS	4,670	1,890
TOTAL COSTS^a	15,073	6,100
	195.40/tonne	177.30/ton
Average yield: 77.14 tonne/ha; 34.4 ton/acre		
Average price: \$195.27 tonne; \$177.20/ton		
GROSS MARGIN ANALYSIS^b		
Gross income	15,063	6,096
Total variable costs	10,403	4,210
Gross margin	4,660	1,886
CASH ANALYSIS^b		
Gross income	15,063	6,096
Cash costs ^c	10,551	4,270
Returns over cash costs	4,512	1,826

^a Includes costs of hand harvesting, washing and packing into crates at farm before delivery to shipper.

^b Five-year average yields 1978-82 and two-year average prices (1981-82) are used in this analysis.

^c Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$74/ha (\$30/acre) plus taxes and other overhead costs.

TABLE 8. FRESH MARKET CELERY (HAND HARVEST) ON MUCK SOILS: OPERATION COSTS,
ONTARIO, 1984

Operation	Times over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Fall discing	1	2.47	1.00	65.63	26.56
Deep cultivate, fall	1	1.24	.50	30.12	12.19
Spread fertilizer	1	.74	.30	14.06	5.69
Deep cultivate, spring	1	1.24	.50	30.12	12.19
Disc and level	1	.99	.40	27.36	11.07
Transplant in greenhouse	1	148.00	60.00	667.20	270.00
Greenhouse maintenance	1	14.80	6.00	96.37	39.00
Haul plants	1	12.40	5.00	209.43	84.75
Plant in field (by hand)	1	173.00	70.00	778.40	315.00
Hand weed	1	54.40	22.00	244.64	99.00
Sidedress	2	4.94	2.00	88.71	35.90
Irrigating	3	44.50	18.00	539.98	218.52
Spray weeds	2	1.48	.60	29.33	11.87
Spray insecticide and fungicide	6	4.45	1.80	88.07	35.64
Spray foliar	5	3.71	1.50	73.37	29.69
Cut in field	a	657.00	266.00	3,286.56	1,330.00
Haul to packing shed	a	24.70	10.00	418.85	169.50
Wash, pack and haul to market	a	210.00	85.00	1,365.28	552.50

^a Operation performed as required.

TABLE 9. HEAD LETTUCE: ESTIMATED COST OF PRODUCTION, ON MUCK SOILS, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 52.6 hours/hectare	2,630	1,064
Seed, pelleted 270,000/hectare	88	36
Fertilizer, N - 98 kg/ha; P ₂ O ₅ - 98 kg/ha; K ₂ O - 98 kg/ha	151	61
Insecticides	106	43
Fungicides	16	6
Tractor and machine costs:		
- repairs and maintenance	336	136
- fuel	55	22
Crates, non returnable, 835	2,476	1,002
Interest on operating capital	190	77
TOTAL VARIABLE COSTS	6,048	2,447
FIXED COSTS		
Operator labour, 45 hours/hectare	291	118
Management allowance, 5% of gross income	463	187
Tractor and machine costs:		
- depreciation	257	104
- interest on investment	165	67
- insurance and storage	62	25
Interest on land, \$17,297 @ 7.1% per annum	1,228	497
Taxes	37	15
Other overhead costs	37	15
TOTAL FIXED COSTS	2,540	1,028
TOTAL COSTS^a	8,588	3,475
	2.78/doz	2.78/doz
Average yield: 3,089 doz/ha; 1,250 doz/acre		
Average price: \$3.00/doz		
GROSS MARGIN ANALYSIS^b		
Gross income	9,267	3,750
Total variable costs	6,048	2,447
Gross margin	3,219	1,303
CASH ANALYSIS^b		
Gross income	9,267	3,750
Cash costs ^c	6,186	2,503
Returns over cash costs	3,081	1,247

^a Includes costs of harvesting, packing into crates and delivery to shipper.

^b Five-year average yields 1978-82 and two-year average prices (1981-82) are used in this analysis.

^c Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$64/ha (\$26/acre) plus taxes and other overhead costs.

TABLE 10. HEAD LETTUCE ON MUCK SOILS: OPERATION COSTS, ONTARIO, 1984

Operation	Times over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Fall discing	1	.99	.40	26.24	10.62
Deep cultivate in fall	1	1.24	.50	30.12	12.19
Spring discing	1	.99	.40	26.24	10.62
Spread fertilizer	1	.74	.30	14.06	15.69
Deep cultivate	1	1.24	.50	30.12	12.19
Disc and level	1	.99	.40	27.36	11.07
Seeding	1	2.47	1.00	64.97	26.29
Hand thin	1	124.00	50.00	556.00	225.00
Irrigating	1	29.60	12.00	246.71	99.84
Spray insecticides	7	5.19	2.10	102.75	41.58
Spray fungicides	5	3.71	1.50	73.37	29.69
Row cultivate	2	4.94	2.00	95.48	38.64
Hand hoe	1	98.80	40.00	444.80	180.00
Row cultivate and sidedress	1	2.47	1.00	52.73	21.34
Harvest and pack	a	292.00	118.00	1,457.95	590.00
Spread crates	a	12.40	5.00	231.67	93.75
Haul to market	a	12.40	5.00	313.71	126.95

^a Operation performed as needed.

TABLE 11. PEPPERS FOR FRESH MARKET: ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 190 hours/hectare	935	378
Plants, 27,180/hectare	510	206
Fertilizer, N - 204 kg/ha, P ₂ O ₅ - 168 kg/ha, K ₂ O - 168 kg/ha	240	97
Herbicide	24	10
Insecticides	149	61
Fungicides	74	30
Crates, non-returnable, 1,385/ha	1,038	420
Tractor and machine costs:		
- repairs and maintenance	72	29
- fuel	205	83
Interest on operating capital	141	57
TOTAL VARIABLE COSTS	3,388	1,371
FIXED COSTS		
Operator labour, 28.5 hours/hectare	270	109
Management allowance, 5% of gross income	259	105
Tractor and machine costs:		
- depreciation	170	69
- interest on investment	128	52
- insurance and housing	38	15
Interest on land, \$4,942/ha @ 7.1% per annum	351	142
Taxes	25	10
Other overhead	37	15
TOTAL FIXED COSTS	1,278	517
TOTAL COSTS	4,666	1,888
	\$297.20/tonne	\$269.71/ton
Average yield: 15.7 tonne/ha, 7.0 ton/acre		
Average price: \$330.52/tonne, \$300.07/ton		
GROSS MARGIN ANALYSIS^a		
Gross income	5,189	2,100
Total variable costs	3,388	1,371
Gross margin	1,801	729
CASH ANALYSIS^a		
Gross income	5,189	2,100
Cash costs ^b	3,493	1,413
Returns over cash costs	1,696	687

^a Five-year average yields 1978-82 and two-year average prices 1981-82 used in this analysis.

^b Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$43/ha (\$17/acre) plus taxes and other overhead.

TABLE 12. PEPPERS FOR FRESH MARKET: OPERATION COSTS, ONTARIO, 1984

Operation	Times Over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		Hrs /ha.	Hrs /acre	\$/ha	\$/acre
Plowing	1	1.48	.60	41.96	16.98
Discing	1	.99	.40	26.24	10.62
Spread fertilizer	1	.99	.40	16.90	6.84
Spray herbicide	1	.99	.40	17.89	7.24
Cultivating & levelling	1	.99	.40	25.20	10.20
Haul plants & water	a	2.96	1.20	53.20	21.53
Planting	1	17.80	7.20	167.31	67.71
Row cultivating	1	1.48	.60	25.97	10.51
Hand hoe (labour only)	1	17.30	7.00	77.84	31.50
Row cultivating and sidedressing fertilizer	1	1.48	.60	25.97	10.51
Spray insecticides	7	6.92	2.80	125.18	50.66
Spray fungicides	2	1.98	.80	35.78	14.48
Harvest & pack (labour only)	a	138.00	56.00	691.89	280.00
Loading in field	a	29.60	12.00	426.11	172.44
Hauling to market	a	7.41	3.00	48.18	19.50

^a Operation performed as required.

TABLE 13. FRESH MARKET POTATOES: ESTIMATED COST OF PRODUCTION, ONTARIO,
1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 24 hours/hectare	129	50
Seed, potato	630	255
Seed, rye	12	5
Seed treatment	35	14
Fertilizer, N - 168 kg/ha; P ₂ O ₅ - 168 kg/ha		
K ₂ O - 168 kg/ha	216	88
Herbicides	117	48
Insecticides	124	50
Fungicides	45	18
Topkill	29	12
Tractor and machine costs:		
- repairs and maintenance	275	111
- fuel	101	41
Marketing fees	37	15
Interest on operating capital	171	69
TOTAL VARIABLE COSTS	1,921	778
FIXED COSTS		
Operator labour, 17 hours/ha	109	44
Management allowance, 5% of gross income	142	58
Tractor and machine costs:		
- depreciation	248	100
- interest on investment	167	68
- insurance and storage	62	25
Interest on land, \$3,707/ha @ 7.1% per annum	263	106
Taxes	12	5
Other overhead costs	37	15
TOTAL FIXED COSTS	1,040	421
TOTAL COSTS^a	2,961	1,199
	139.67/tonne	6.38/cwt
Average yield: 21.2 tonne/ha; 188/cwt		
Average price: \$133.89/tonne; \$6.11/cwt		
GROSS MARGIN ANALYSIS^b		
Gross income	2,838	1,149
Total variable costs	1,921	778
Gross margin	917	371
CASH ANALYSIS^b		
Gross income	2,838	1,149
Cash costs ^c	2,034	824
Returns over cash costs	804	325

^a Does not include storage and marketing costs.

^b Five-year average yields and three-year average prices used in this analysis.

^c Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$64/ha (\$26/acre) plus taxes and other overhead costs.

TABLE 14. FRESH MARKET POTATOES: OPERATION COSTS, ONTARIO, 1984

Operation	Times over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Fall plowing	1	.82	.33	20.88	8.45
Discing	2	.74	.30	18.98	7.68
Plant rye	1	.99	.40	17.17	6.95
Spring plowing	1	.37	.40	25.30	10.24
Discing	1	.37	.15	9.46	3.83
Field cultivate	1	.37	.15	11.02	4.46
Cut seed	1	.86	.35	19.08	7.72
Haul fertilizer	1	.62	.25	29.53	11.95
Haul seed	1	1.24	.50	54.14	21.91
Planting	1	4.32	1.75	94.54	38.26
Row cultivate	1	1.36	.55	33.26	13.46
Hilling	1	.82	.33	18.83	7.62
Spray herbicide	1	.40	.16	12.21	4.94
Spray insecticide and fungicide	6	1.63	.66	66.03	26.72
Spray topkill	1	.27	.11	11.00	4.45
Dig & windrow	1	2.47	1.00	60.67	24.55
Harvesting	1	7.41	3.00	125.58	50.82
Hauling to storage	1	7.41	3.00	391.13	158.28
Unloading and grading	1	7.41	3.00	72.45	29.32

TABLE 15. SWEET CORN FOR FRESH MARKET (HAND HARVEST): ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 95 hours/hectare	477	193
Seed, 13.5 kg/hectare	119	48
Fertilizer, N - 126 kg/ha, P ₂ O ₅ - 64 kg/ha, K ₂ O - 74 kg/ha	153	62
Herbicide	46	19
Insecticides	105	42
Crates, non-returnable, 415/ha	311	126
Tractor and machine costs:		
- repairs and maintenance	128	52
- fuel	87	35
Custom work	12	5
Interest on operating capital	62	25
TOTAL VARIABLE COSTS	1,500	607
FIXED COSTS		
Operator labour, 25 hours/hectare	164	66
Management allowance, 5% of gross income	107	43
Tractor and machine costs:		
- depreciation	143	58
- interest on investment	89	36
- insurance and housing	25	10
Interest on land, \$3,707/ha @ 7.1% per annum	263	107
Taxes	13	5
Other overhead	37	15
TOTAL FIXED COSTS^a	841	340
TOTAL COSTS^a	2,341	947
	\$1.12/doz.	\$1.12/doz.
Average yield: 2,080 doz./ha, 842 doz./acre		
Average price: \$1.03/doz., \$1.03/doz.		
GROSS MARGIN ANALYSIS^b		
Gross income	2,142	867
Total variable costs	1,500	607
Gross margin	642	260
CASH ANALYSIS^b		
Gross income	2,142	867
Cash costs ^c	1,586	642
Returns over cash costs	556	225

^a Sweet corn is hand harvested and packed into crates at the farm before being hauled to shipper.

^b Five-year average yields 1978-82 and two-year average prices 1981-82 are used in this analysis.

^c Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$36/ha (\$15/acre) plus taxes and other overhead.

TABLE 16. SWEET CORN FOR FRESH MARKET (HAND HARVEST): OPERATION COSTS, ONTARIO, 1984

Operation	Times Over	Labour hours		Labour, Tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Plowing	1	.79	.32	22.39	9.06
Discing	1	.99	.40	26.24	10.62
Spread fertilizer	1	.99	.40	16.90	6.84
Spray herbicide	1	.99	.40	17.89	7.24
Cultivate and harrow	1	.99	.40	25.40	10.28
Haul seed & fertilizer	a	.30	.12	5.56	2.25
Planting	1	.59	.24	21.28	8.61
Row cultivating	2	1.58	.64	24.51	9.92
Custom apply "N" and herbicide	1	-	-	11.74	4.75
Picking & hauling to farm yard	a	69.20	28.00	453.93	183.70
Sort & pack (labour only)	a	24.70	10.00	123.55	50.00
Haul to market ^b	a	2.47	1.00	62.74	25.39

^a Operation performed as required.

^b Using a truck.

TABLE 17. FIELD TOMATOES FOR FRESH MARKET: ESTIMATED COST OF PRODUCTION,
ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 417 hours/hectare	2,067	837
Plants, 24,710/hectare	618	250
Fertilizer: plant starter 6-24-24, 49ℓ/ha	49	20
N - 225 kg/ha, P ₂ O ₅ - 93 kg/ha,		
K ₂ O - 270 kg/ha	320	129
Herbicide	17	7
Insecticide	32	13
Fungicide	146	59
Containers	2,742	1,110
Use of picking baskets	49	20
Tractor & machine costs:		
- repairs and maintenance	170	69
- fuel	242	98
Interest on operating capital	280	113
TOTAL VARIABLE COSTS	6,732	2,725
FIXED COSTS		
Operator labour, 39 hours/hectare	247	100
Management allowance, 5% of gross income	396	160
Tractor & machine costs:		
- depreciation	252	102
- interest on investment	195	79
- insurance and storage	57	23
Interest on land, \$4,942/ha @ 7.1% per annum	351	142
Taxes	25	10
Other overhead	37	15
TOTAL FIXED COSTS	1,560	631
TOTAL COSTS^a	8,292	3,356
	410.92/tonne	372.89/ton
Average yield: 20.18 t/ha, 9.0 ton/acre		
Average price: \$392.33/t, \$356.00/ton		
GROSS MARGIN ANALYSIS^b		
Gross income	\$7,917	\$3,204
Total variable costs	\$6,732	\$2,725
Gross margin	\$1,185	\$ 479
CASH ANALYSIS^b		
Gross income	\$7,917	\$3,204
Cash costs ^c	\$6,875	\$2,783
Returns over cash costs	\$1,042	\$ 421

^a Tomatoes are graded and packed into containers at farm before being shipped to dealer.

^b Five-year average yield 1978-82, two-year 1981-82 average prices are used in this analysis.

^c Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$81/ha (\$23/acre) plus taxes and other overhead costs.

TABLE 18. FIELD TOMATOES FOR FRESH MARKET: OPERATION COSTS, ONTARIO, 1984

Operation	Times Over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Plowing	1	1.48	.60	41.96	16.98
Discing	1	.99	.40	26.24	10.62
Spread fertilizer	1	.99	.40	16.90	6.84
Spray herbicide	1	.99	.40	17.89	7.24
Field cultivate & level	1	.99	.40	25.20	10.20
Haul plants	a	1.98	.80	38.57	15.61
Planting	1	17.80	7.20	167.31	67.71
Row cultivate	1	.99	.40	17.40	7.04
Hand hoe (labour only)	1	24.70	10.00	111.20	45.00
Row cultivate & sidedress	1	2.96	1.20	58.19	23.55
Spray for insect and disease control	6	5.93	2.40	107.29	43.42
Harvest & pack	a	380.00	154.00	2,226.66	901.10
Haul to market ^b	a	14.80	6.00	376.44	152.34

^a Operation performed as required

^b Using a truck.

TABLE 19. YELLOW SEED ONIONS: ESTIMATED COST OF PRODUCTION, ON MUCK SOILS,
ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 86.5 hours/hectare	415	168
Seed, pelleted, treated, 1,110,000/ha	750	304
Fertilizer, N - 147 kg/ha; P ₂ O ₅ - 49 kg/ha; K ₂ O - 247 kg/ha	342	138
Herbicides	619	250
Insecticides	199	80
Fungicides	375	152
Sprout inhibitor	46	19
Plastic covers	39	16
Tractor and machine costs:		
- repairs and maintenance	309	125
- fuel	58	23
Pallet box repairs	22	9
Storage building, repairs & insurance	34	14
Electricity, used in storage	35	14
Interest on operating capital	212	86
TOTAL VARIABLE COSTS	3,455	1,398
FIXED COSTS		
Operator labour, 33.5 hours/hectare	219	88
Management allowance, 5% of gross income	304	123
Tractor and machine costs:		
- depreciation	445	180
- interest on investment	323	131
- insurance and storage	129	52
Pallet box use	498	202
Storage building, interest and depreciation	455	184
Interest on land, \$17,297/ha @ 7.1% per annum	1,228	497
Taxes	49	20
Other overhead costs	37	15
TOTAL FIXED COSTS	3,687	1,492
TOTAL COSTS^a	7,142	2,890
	172.10/tonne	156.22/ton
Average yield: 41.5 tonne/ha; 18.5 ton/acre		
Average price: \$146.56/tonne; \$133.00/ton		
GROSS MARGIN ANALYSIS^b		
Gross income	6,082	2,461
Total variable costs	3,455	1,398
Gross margin	2,627	1,063
CASH ANALYSIS^b		
Gross income	6,082	2,461
Cash costs ^c	3,678	1,488
Returns over cash costs	2,404	973

^a Onions are delivered to shipper in bulk bins, costs of grading and bagging are not included.

^b Five-year average yield 1978-82 and two-year average prices (1981-82) are used in this analysis.

^c Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$137/ha (\$55/acre) plus taxes and other overhead costs.

TABLE 20. YELLOW SEED ONIONS ON MUCK SOILS: OPERATION COSTS, ONTARIO, 1984

Operation	Times over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Fall discing	1	.99	.40	26.24	10.62
Deep cultivate, fall	1	1.24	.50	30.12	12.19
Spread fertilizer	1	.62	.25	11.69	4.73
Spray herbicide	2	.99	.40	19.57	7.92
Disc and level, spring	1	.99	.40	27.36	11.07
Seeding (onion maggot control)	1	2.47	1.00	64.97	26.29
Spray herbicide, post emerge.	8	3.95	1.60	78.26	31.67
Spray insecticide	5	2.47	1.00	48.93	19.80
Spray fungicide	9	4.45	1.80	88.07	35.64
Spray sprout inhibitor	1	.49	.20	9.79	3.96
Hand weed	1	42.00	17.00	189.04	76.50
Row cultivate and sidedress	1	2.47	1.00	52.73	21.34
Pull and windrow	1	7.41	3.00	572.83	231.81
Combine	1	14.80	6.00	151.53	61.32
Stack pallet boxes in field	a	4.94	2.00	75.91	30.72
Haul to storage	a	14.80	6.00	182.47	73.84
Unloading at storage	a	4.94	2.00	24.71	10.00
Load and haul to market	a	9.88	4.00	89.16	36.08

^a Operation performed as required

TABLE 21. CABBAGE FOR PROCESSING: ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 37 hours/hectare	167	67
Plants, 29,450/hectare ^a	214	87
Fertilizer, N - 169 kg/ha, P ₂ O ₅ - 225 kg/ha		
K ₂ O - 112 kg/ha	321	130
Herbicide	18	7
Insecticides	146	59
Tractor & machine costs:		
- repairs and maintenance	77	31
- fuel	101	41
Custom harvest & haul	587	237
Crop insurance	86	35
Marketing fees	24	10
Interest on operating capital	19	8
TOTAL VARIABLE COSTS	1,760	712
FIXED COSTS		
Operator labour, 16.4 hours/ha	107	43
Management allowance, 5% of gross income	133	54
Tractor & machine costs:		
- depreciation	91	37
- interest on investment	57	23
- insurance & storage	22	9
Interest on land, \$4,942/ha @ 7.1% per annum	351	142
Taxes	18	7
Other overhead costs	37	15
TOTAL FIXED COSTS	816	330
TOTAL COSTS	2,576	1,042
	56.25/t	51.03/ton
Average yield: 45.8 tonne/ha, 20.42 ton/acre		
Average price: \$58.17/tonne, \$52.80/ton		
GROSS MARGIN ANALYSIS^b		
Gross income	\$2,664	\$1,078
Total variable costs	\$1,760	\$ 712
Gross margin	\$ 904	\$ 366
CASH ANALYSIS^b		
Gross income	\$2,664	\$1,078
Cash costs ^c	\$1,839	\$ 744
Returns over cash costs	\$ 825	\$ 334

^a Includes only one half of plant cost, as processor supplies plants for early crop and the grower for the late crop.

^b Five-year average yields 1979-83 and 1984 contract price used in this analysis.

^c Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$24/ha (\$10/acre) plus taxes and other overhead costs.

TABLE 22. CABBAGE FOR PROCESSING: OPERATION COSTS, ONTARIO, 1984

Operation	Times over	Labour Hours		Labour, tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Plowing	1	.99	.40	39.31	15.91
Discing	1	.37	.15	16.83	6.81
Spread fertilizer	1	.37	.15	8.57	3.47
Spray herbicide	1	.37	.15	9.24	3.74
Field cultivate, harrow and pack	1	.74	.30	30.72	12.43
Haul plants	a	1.24	.50	38.18	15.45
Planting	1	29.70	12.00	338.93	137.16
Spray insecticides	4	1.48	.60	37.04	14.99
Row cultivate	1	.49	.20	11.71	4.74
Hand hoe (labour only)	1	17.30	7.00	77.84	31.50
Row cultivate and sidedress fertilizer	1	.49	.20	12.70	5.14

^a Operation performed as required.

TABLE 23. CUCUMBERS FOR PROCESSING: ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 541 hours/hectare	2,697	1,092
Seed, 3.36 kg/hectare	80	32
Fertilizer, N - 118 kg/ha, P ₂ O ₅ - 168 kg/ha, K ₂ O - 168 kg/ha	240	97
Insecticide	36	15
Fungicides	148	60
Tractor and machine costs:		
- repairs and maintenance	50	20
- fuel	85	34
Bee rental	50	20
Use of picking baskets	90	36
Crop insurance	96	39
Marketing fees	42	17
Interest on operating capital	39	16
TOTAL VARIABLE COSTS	3,653	1,478
FIXED COSTS		
Operator labour, 5.4 hours/hectare	86	35
Management allowance, 5% of gross income	238	96
Tractor and machine costs:		
- depreciation	65	26
- interest on investment	40	16
- insurance and housing	17	7
Interest on land, \$4,942/ha @ 7.1% per annum	351	142
Taxes	19	8
Other overhead	37	15
TOTAL FIXED COSTS	853	345
TOTAL COSTS	4,506	1,823
	\$230.13/tonne	\$208.82/ton
Average yield: 19.58 tonne/ha, 8.73 ton/acre		
Average price: \$243.10/tonne, \$220.60/ton		
GROSS MARGIN ANALYSIS^a		
Gross income	4,760	1,926
Total variable costs	3,653	1,478
Gross margin	1,107	448
CASH ANALYSIS^a		
Gross income	4,760	1,926
Cash costs ^b	3,726	1,508
Returns over cash costs	1,034	418

^a Five-year average yields 1979-83, and 1984 contract prices used in this analysis.

^b Cash costs include total variable costs plus interest on debt portion of investment in tractors and machines of \$17/ha (\$7/acre) plus taxes and other overhead.

TABLE 24. CUCUMBERS FOR PROCESSING: OPERATION COSTS, ONTARIO, 1984

Operation	Times Over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		Hrs/ha	hrs/acre	\$/ha	\$/acre
Plowing	1	.99	.40	39.31	15.91
Discing	1	.37	.15	16.83	6.81
Cultivating, harrowing and packing	1	.37	.15	15.37	6.22
Planting	1	.99	.40	30.32	12.27
Hand hoeing (labour only)	1	17.30	7.00	77.84	31.50
Row cultivating	1	.49	.20	11.72	4.74
Spray fungicides	3	1.11	.45	27.77	11.24
Row cultivating & sidedressing fertilizer	2	1.24	.50	31.75	12.85
Spray insecticide	1	.37	.15	9.24	3.74
Picking (labour only)	a	524.00	212.00	2,619.31	1,060.00
Loading in field ^b	a	4.94	2.00	107.24	43.40
Hauling to market	a	2.47	1.00	53.62	21.70

^a Operation performed as required.

^b Hauling with tractor and wagons

TABLE 25. GREEN PEAS FOR PROCESSING: ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Seed, 252 kg/hectare	216	87
Fertilizer, N - 13 kg/ha, P ₂ O ₅ - 25 kg/ha,		
K ₂ O - 38 kg/ha	64	26
Herbicides	43	17
Tractor and machine costs:		
- repairs and maintenance	23	9
- fuel	33	14
Custom harvesting and hauling	261	106
Crop insurance	54	22
Marketing fees	10	4
Interest on operating capital	8	3
TOTAL VARIABLE COSTS	712	288
FIXED COSTS		
Operator labour, 4 hours/hectare	26	10
Management allowance, 5% of gross income	56	23
Tractor and machine costs:		
- depreciation	28	11
- interest on investment	19	8
- insurance and housing	7	3
Interest on land, \$3,707/ha @ 7.1% per annum	263	107
Taxes	13	5
Other overhead	37	15
TOTAL FIXED COSTS	449	182
TOTAL COSTS	1,161	470
	374.52/tonne	343.06/ton
Average yield: 3.1 tonne/ha, 1.37 ton/acre		
Average price: \$363.86/tonne, \$333.20/ton		
GROSS MARGIN ANALYSIS^a		
Gross income	1,128	456
Total variable costs	712	288
Gross margin	416	168
CASH ANALYSIS^a		
Gross income	1,128	456
Cash costs	770	311
Returns over cash costs	358	145

^a Five-year average yields 1979-83, and 1984 contract price used in this analysis.

^b Cash costs include total variable costs plus interest on debt portion of investment in tractors and machines of \$8/ha (\$3/acre) plus taxes and other overhead.

TABLE 26. GREEN PEAS FOR PROCESSING: OPERATION COSTS, ONTARIO, 1984

Operation	Times Over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		Hrs/ha	Hrs/acre	\$/ha	\$/acre
Plowing	1	.99	.40	39.31	15.91
Discing	1	.35	.14	15.72	6.36
Spreading fertilizer	1	.35	.14	8.01	3.24
Spraying herbicides	2	.69	.28	17.25	6.98
Cultivating, harrowing and packing	1	.35	.14	14.36	5.81
Hauling seed	1	.25	.10	7.64	3.09
Planting	1	.99	.40	32.74	13.25
Custom harvesting and hauling	1	-	-	260.70	105.50

TABLE 27. GREEN AND WAX BEANS FOR PROCESSING: ESTIMATED COST OF PRODUCTION
ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Seed, 89 kg/ha	258	104
Fertilizer: N - 17 kg/ha, P ₂ O ₅ - 34 kg/ha, K ₂ O - 50 kg/ha	64	26
Herbicide	24	10
Tractor and machine costs:		
- repairs and maintenance	22	9
- fuel	30	12
Custom harvesting and hauling	263	107
Custom spraying	15	6
Crop insurance	91	37
Marketing fees	17	7
Interest on operating capital	9	3
TOTAL VARIABLE COSTS	793	321
FIXED COSTS		
Operator labour, 3.6 hours/hectare	23	9
Management allowance, 5% of gross income	68	27
Tractor and machine costs:		
- depreciation	26	10
- interest on investment	17	7
- insurance and housing	7	3
Interest on land, \$3,707/ha @ 7.1% per annum	263	107
Taxes	13	5
Other overhead	37	15
TOTAL FIXED COSTS	454	183
TOTAL COSTS	1,247	504
	234.84/tonne	212.66/ton
Average yield: 5.31 tonne/ha; 2.37 ton/acre		
Average price: \$255.87/tonne; \$232.00/ton		
GROSS MARGIN ANALYSIS^a		
Gross income	1,359	550
Total variable costs	793	321
Gross margin	566	229
CASH ANALYSIS^a		
Gross income	1,359	550
Cash costs ^b	850	344
Returns over cash costs	509	206

^a Five-year average yield 1979-83 and 1984 contract price used in this analysis.

^b Cash costs include total variable costs plus interest on debt portion of investment in tractors and machines of \$7/ha (\$3/acre) plus taxes and other overhead.

TABLE 28. GREEN AND WAX BEANS FOR PROCESSING: OPERATION COSTS, ONTARIO, 1984

Operation	Times Over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Plowing	1	.99	.40	39.31	15.91
Discing	1	.35	.14	15.72	6.36
Spread fertilizer	1	.35	.14	8.01	3.24
Spray herbicide	1	.35	.14	8.62	3.49
Cultivating, harrowing and packing	1	.35	.14	14.36	5.81
Hauling seed	1	.25	.10	7.64	3.09
Planting	1	.49	.20	20.71	8.38
Custom spray herbicide	1	-	-	14.83	6.00
Row cultivating	1	.44	.18	10.53	4.26
Custom harvesting and hauling	1	-	-	263.41	106.60

TABLE 29. LIMA BEANS FOR PROCESSING: ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Seed, 59 kg/hectare	87	35
Fertilizer, N - 17 kg/ha, P ₂ O ₅ - 34 kg/ha		
K ₂ O - 50 kg/ha	64	26
Herbicides	60	24
Tractor and machine costs:		
- repairs and maintenance	26	11
- fuel	39	16
Custom harvesting and hauling	262	106
Crop insurance	188	76
Marketing fees	14	6
Interest on operating capital	8	3
TOTAL VARIABLE COSTS	748	303
FIXED COSTS		
Operator labour, 4.7 hours/hectare	31	12
Management allowance, 5% of gross income	78	31
Tractor and machine costs:		
- depreciation	32	13
- interest on investment	21	9
- insurance and housing	9	4
Interest on land, \$4,942/ha @ 7.1% per annum	351	142
Taxes	19	8
Other overhead	37	15
TOTAL FIXED COSTS	578	234
TOTAL COSTS	1,326	537
	457.24/tonne	413.08/ton
Average yield: 2.9 tonne/ha, 1.3 ton/acre		
Average price: \$538.35/tonne, \$486.00/ton		
GROSS MARGIN ANALYSIS^a		
Gross income	1,561	632
Total variable costs	748	303
Gross margin	813	329
CASH ANALYSIS^a		
Gross income	1,561	632
Cash costs ^b	813	330
Returns over cash costs	748	302

^a Five-year average yield 1979-83 and 1984 contract price used in this analysis.

^b Cash costs include total variable costs plus interest on debt portion of investment in tractors and machines of \$9/ha (\$4/acre) plus taxes and other overhead costs.

TABLE 30. LIMA BEANS FOR PROCESSING: OPERATION COSTS, ONTARIO, 1984

Operation	Times Over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		Hrs/ha	Hrs/acre	\$/ha	\$/acre
Plowing	1	.99	.40	39.31	15.91
Discing	1	.34	.14	15.72	6.36
Spread fertilizer	1	.34	.14	8.00	3.24
Spray herbicide	1	.34	.14	8.62	3.49
Cultivating, harrowing and packing	2	.69	.28	28.66	11.60
Hauling seed	1	.25	.10	7.64	3.09
Planting	1	.49	.20	20.71	8.38
Spray herbicide	1	.34	.14	8.62	3.49
Rotary hoeing	1	.34	.14	8.48	3.43
Row cultivating	1	.54	.22	12.87	5.21
Custom swathing	1	-	-	21.00	8.50
Custom harvesting and hauling	1	-	-	240.93	97.50

TABLE 31. PEPPERS FOR PROCESSING: ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 163 hours/hectare	797	322
Plants, 27,180/hectare	510	206
Fertilizer, N - 118 kg/ha, P ₂ O ₅ - 168 kg/ha, K ₂ O - 158 /ha	241	98
Herbicide	24	10
Insecticides	149	61
Allowance for use of picking baskets	60	24
Tractor and machine costs:		
- repairs and maintenance	113	46
- fuel	166	67
Crop insurance	124	50
Marketing fees	34	14
Interest on operating capital	72	29
TOTAL VARIABLE COSTS	2,290	927
FIXED COSTS		
Operator labour, 28.5 hours/hectare	185	75
Management allowance, 5% of gross income	179	73
Tractor and machine costs:		
- depreciation	140	57
- interest on investment	85	34
- insurance and storage	35	14
Interest on land, \$4,942/ha @ 7.1% per annum	351	142
Taxes	25	10
Other overhead costs	37	15
TOTAL FIXED COSTS	1,037	420
TOTAL COSTS	3,327	1,347
Average yield: 13.6 t/ha, 6.1 ton/acre	244.63/tonne	220.82/ton
Average price: \$262.73/tonne, \$238.22/ton		
GROSS MARGIN ANALYSIS^a		
Gross income	3,573	1,453
Total variable costs	2,290	927
Gross margin	1,283	526
CASH ANALYSIS^a		
Gross income	3,573	1,453
Cash costs ^b	2,387	966
Returns over cash costs	1,186	487

^a Five-year average yields 1979-83 and 1984 contract price used in this analysis.

^b Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$35/ha (\$14/acre) plus taxes and other overhead costs.

TABLE 32. PEPPERS FOR PROCESSING: OPERATION COSTS, ONTARIO, 1984

Operation	Times Over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		Hrs/ha	Hrs/acre	\$/ha	\$/acre
Plowing	1	.99	.40	39.31	15.91
Discing	1	.37	.15	16.83	6.81
Spreading fertilizer	1	.37	.15	8.57	3.47
Spraying herbicide	1	.37	.15	9.24	3.74
Cultivating, harrowing and packing	2	.74	.30	30.72	12.43
Hauling plants	a	1.24	.50	38.18	15.45
Planting	1	29.60	12.00	338.93	137.16
Row cultivating	1	.62	.25	14.60	5.91
Spraying insecticides	7	2.59	1.05	64.84	26.24
Hand hoeing (labour only)	1	17.30	7.00	77.84	31.50
Row cultivating and sidedressing	2	.74	.30	38.13	15.43
Hand picking (labour only)	a	119.00	48.00	593.05	240.00
Loading in field	a	14.80	6.00	197.93	80.10
Hauling to market ^b	a	2.47	1.00	53.62	21.70

^a Operation performed as required

^b Hauling to market by using a tractor and wagons.

TABLE 33. POTATOES FOR PROCESSING: ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 24.7 hours/hectare	136	55
Seed, 2,106 kg/hectare	630	255
Seed treatment	35	14
Cover crop costs, clover seed	30	12
Fertilizer, N - 185 kg/ha, P ₂ O ₅ - 185 kg/ha		
K ₂ O - 185 kg/ha	265	107
Lime	43	17
Herbicides	84	34
Insecticides	147	60
Fungicides	89	36
Topkill	43	17
Tractor and machine costs:		
- repairs and maintenance	340	138
- fuel	128	52
Marketing fees	44	18
Interest on operating capital	196	79
TOTAL VARIABLE COSTS	2,210	894
FIXED COSTS		
Operator labour, 14.8 hours/hectare	100	40
Management allowance, 5% of gross income	130	53
Tractor and machine costs:		
- depreciation	293	119
- interest on investment	190	77
- insurance and storage	76	31
Interest on land, \$3,706/ha @ 7.1% per annum	263	106
Taxes	12	5
Other overhead costs	37	15
TOTAL FIXED COSTS	1,101	446
TOTAL COSTS^a	3,311	1,340
	131.91/tonne	5.98/cwt
Average yield: 25.1 tonne/ha, 224 cwt/acre		
Average price: \$103.87/tonne; \$4.71/cwt		
GROSS MARGIN ANALYSIS^b		
Gross income	2,607	1,056
Total variable costs	2,210	894
Gross margin	397	162
CASH ANALYSIS^b		
Gross income	2,607	1,056
Cash costs ^c	2,339	946
Returns over cash costs	268	110

^a This does not include storage costs.

^b Two-year average yields and five-year average prices are in this analysis.

^c Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$80/ha (\$32/acre) plus taxes and other overhead costs.

TABLE 34. POTATOES FOR PROCESSING: OPERATION COSTS, ONTARIO, 1984

Operation	Times over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Disc	1	1.24	.50	43.00	17.40
Seed cover crop	1	.62	.25	21.30	8.62
Spring plow (cover crops)	1	1.24	.50	48.04	19.44
Chisel plow	1	1.24	.50	44.06	17.83
Disc	1	1.24	.50	43.00	17.40
Field cultivate	2	.82	.33	30.07	12.17
Cut seed	1	.86	.35	19.08	7.72
Haul fertilizer and seed	1	.86	.35	108.46	43.89
Plant	1	1.78	.72	64.32	26.03
Row cultivate	1	.69	.28	9.04	3.66
Hilling	1	1.24	.50	26.76	10.83
Haul water for spraying	1	1.24	.50	55.35	22.40
Spray herbicide	1	.49	.20	18.95	7.67
Spray insecticide	1	.32	.13	11.69	4.73
Spray fungicide	5	1.73	.70	64.27	26.01
Spray topkill	1	.32	.13	11.69	4.73
Dig & windrow	1	2.47	1.00	81.00	32.78
Harvesting	1	7.41	3.00	133.32	53.95
Hauling to storage	1	7.41	3.00	365.30	147.83
Unload at storage	1	7.41	3.00	64.32	26.03

TABLE 35. RED BEETS FOR PROCESSING: ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 62 hours/hectare	278	113
Seed, 7 kg/hectare	60	24
Fertilizer, N - 123 kg/ha, P ₂ O ₅ - 142 kg/ha, K ₂ O - 101 kg/ha	310	125
Herbicides	285	115
Tractor and machine costs:		
- repairs and maintenance	49	20
- fuel	66	27
Custom harvesting and hauling	535	217
Crop insurance	52	21
Marketing fees	22	9
Interest on operating capital	72	29
TOTAL VARIABLE COSTS	1,729	700
FIXED COSTS		
Operator labour, 13 hours/hectare	84	34
Management allowance, 5% of gross income	132	53
Tractor and machine costs:		
- depreciation	60	24
- interest on investment	37	15
- insurance and housing	14	6
Interest on land, \$4,942/ha @ 7.1% per annum	351	142
Taxes	25	10
Other overhead	37	15
TOTAL FIXED COSTS	740	299
TOTAL COSTS	2,469	999
	81.23/tonne	73.78/ton
Average yield: 30.36 tonne/ha, 13.54/ton/acre		
Average price: \$86.89/tonne, \$78.85/ton		
GROSS MARGIN ANALYSIS^a		
Gross income	2,638	1,068
Total variable costs	1,729	700
Gross margin	909	368
CASH ANALYSIS^a		
Gross income	2,638	1,068
Cash costs ^b	1,807	731
Returns over cash costs	831	337

^a Five-year average yields 1979-83 and 1984 contract prices used in this analysis.

^b Cash costs include total variable costs plus interest on debt portion of investment in tractors and machines of \$16/ha (\$6/acre) plus taxes and other overhead costs.

TABLE 36. RED BEETS FOR PROCESSING: OPERATION COSTS, ONTARIO, 1984

Operation	Times Over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		Hrs/ha	Hrs/acre	\$/ha	\$/acre
Plowing	1	.79	.32	31.43	12.72
Discing	1	.40	.16	17.96	7.27
Spreading fertilizer	1	.40	.16	9.14	3.70
Spraying herbicides	2	.79	.32	19.77	8.00
Cultivating and harrowing	1	.40	.16	15.35	6.21
Planting	1	1.98	.80	60.61	24.53
Row cultivating	3	3.56	1.44	84.29	34.11
Hand hoeing (labour only)	1	61.80	25.00	277.99	112.50
Row cultivating and sidedressing fertilizer	1	1.38	.56	35.58	14.40
Spraying foliar micronutrients	2	.79	.32	19.77	8.00
Custom harvesting	1	-	-	267.61	108.30
Custom hauling	1	-	-	267.61	108.30
Helping harvest (labour only)	a	2.47	1.00	16.06	6.50

^a Operation performed as required.

TABLE 37. SWEET CORN FOR PROCESSING: ESTIMATED COST OF PRODUCTION, ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Seed, 9 kg/hectare	41	17
Fertilizer, N - 111 kg/ha, P ₂ O ₅ - 68 kg/ha, K ₂ O - 68 kg/ha	145	59
Herbicides	52	21
Insecticide	14	5
Tractor and machine costs:		
- repairs and maintenance	24	10
- fuel	35	14
Custom spraying	27	11
Custom harvest and haul	177	72
Crop insurance	94	38
Marketing fees	9	4
Interest on operating capital	7	3
TOTAL VARIABLE COSTS	625	254
FIXED COSTS		
Operator labour, 3.9 hours/hectare	25	10
Management allowance, 5% of gross income	51	21
Tractor and machine costs:		
- depreciation	21	8
- interest on investment	20	9
- insurance and housing	16	6
Interest on land, \$3,707/ha @ 7.1% per annum	263	106
Taxes	13	5
Other overhead	37	15
TOTAL FIXED COSTS	446	180
TOTAL COSTS	1,071	434
	94.20/tonne	85.60/ton
Average yield: 11.37 tonne/ha., 5.07 ton/acre		
Average price: \$89.91/tonne, \$81.60/ton		
GROSS MARGIN ANALYSIS^a		
Gross income	1,022	414
Total variable costs	625	254
Gross margin	397	160
CASH ANALYSIS^a		
Gross income	1,022	414
Cash costs ^b	683	277
Returns over cash costs	339	137

^a Five-year average yield 1979-83 and 1984 contract price used in this analysis.

^b Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$8/ha (\$3/acre) plus taxes and other overhead costs.

TABLE 38. SWEET CORN FOR PROCESSING: OPERATION COSTS, ONTARIO, 1984

Operation	Times Over	Labour Hours		Labour, Tractor and Machine Costs, \$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Plowing	1	.99	.40	39.31	15.91
Discing	1	.34	.14	15.72	6.36
Spread fertilizer	1	.34	.14	8.00	3.24
Cultivating, harrowing and packing	1	.34	.14	14.35	5.81
Haul seed	1	.25	.10	7.64	3.09
Planting	1	.49	.20	20.73	8.39
Spray herbicide	1	.34	.14	8.62	3.49
Row cultivate	1	.44	.18	10.53	4.26
Custom apply "N" and herbicide	1	-	-	13.59	5.50
Custom spray insecticide	1	-	-	13.59	5.50
Custom harvest and haul	1	-	-	177.27	71.74
Discing stalks	1	.34	.14	15.72	6.36

TABLE 39. TOMATOES FOR PROCESSING, HAND HARVEST: ESTIMATED COST OF PRODUCTION,
ONTARIO, 1984

	COST, \$	
	PER HECTARE	PER ACRE
VARIABLE COSTS		
Hired labour, 349 hours/hectare	1,747	707
Plants, 22,485/hectare	427	173
Fertilizer: plant starter, 49ℓ/hectare	49	20
N - 90 kg/ha, P ₂ O ₅ - 94 kg/ha,		
K ₂ O - 269 kg/ha	202	82
Herbicides	84	34
Insecticides & Fungicides (custom applied, materials included)	358	145
Basket use for picking, 247/ha	121	49
Tractor & machine costs:		
- repairs and maintenance	198	80
- fuel	326	132
Crop insurance	117	47
Marketing fees	82	33
Interest on operating capital	161	65
TOTAL VARIABLE COSTS	3,872	1,567
FIXED COSTS		
Operator labour, 34 hours/hectare	220	89
Management allowance, 5% of gross returns	267	108
Tractor and machine costs:		
- depreciation	222	90
- interest on investment	133	54
- insurance and storage	52	21
Interest on land, \$4,942/ha @ 7.1% per annum	351	142
Taxes	19	7
Other overhead costs	37	15
TOTAL FIXED COSTS	1,301	526
TOTAL COSTS	5,173	2,093
	117.69/tonne	106.80/ton
Average yield: 43.95 t/ha; 19.60 ton/acre		
Average price: \$121.65/t; \$110.39/ton		
GROSS MARGIN ANALYSIS^a		
Gross income	\$5,347	\$2,164
Total variable costs	\$3,872	\$1,567
Gross Margin	\$1,475	\$ 597
CASH ANALYSIS^b		
Gross income	\$5,347	\$2,164
Cash costs	\$3,984	\$1,612
Returns over cash costs	\$1,363	\$ 552

^a Five-year average yields, 1979-83 and 1984 contract price used in this analysis.

^b Cash costs include total variable costs, plus interest on debt portion of investment in tractors and machines of \$56/ha (\$23/acre) plus taxes and other overhead costs.

TABLE 40. TOMATOES FOR PROCESSING, HAND HARVEST: OPERATION COSTS, ONTARIO, 1984

Operation	Times over	Labour hours		Labour, tractor and machine costs,\$	
		hrs/ha	hrs/acre	\$/ha	\$/acre
Plowing	1	.74	.30	29.48	11.93
Discing	1	.37	.15	16.83	6.81
Spread fertilizer	1	.37	.15	8.57	3.47
Field cultivate and harrow	1	.37	.15	14.38	5.82
Spray herbicide	1	.37	.15	9.24	3.74
Harrow & pack	1	.37	.15	15.37	6.22
Haul water & plants	a	1.73	.70	54.26	21.96
Planting	1	24.71	10.00	213.94	86.58
Row cultivate	1	1.11	.45	23.97	9.70
Row cultivate & sidedress	1	1.24	.50	29.16	11.80
Hand hoe (labour only)	1	17.30	7.00	77.84	31.50
Hand picking (labour only)	a	287.63	116.40	1,438.15	582.00
Spread baskets	a	1.98	.80	42.88	17.03
Load in field	a	31.14	12.60	457.42	185.11
Haul to processor ^b	a	9.88	4.00	325.19	131.60

a Operation performed as required

b Using tractor and wagons

APPENDIX TABLE 1. AVERAGE YIELDS PER ACRE FOR VEGETABLES, ONTARIO, 1978-1983

Crop	Unit	1978	1979	1980	1981	1982	1983
- '000/acre -							
Asparagus (f & p).....	lb	1.6	1.6	1.5	1.2	1.6	1.1
Beans, green & wax (f).....	lb	6.2	5.8	5.1	5.4	5.7	5.7
Beans, green & wax (p).....	lb	4.3	4.9	5.5	4.1	4.9	4.9
Beans, Lima (p).....	lb	1.8	3.0	2.6	2.2	2.3	2.5
Beets, topped.....	lb	25.7	28.5	28.4	25.8	27.2	25.5
Beets, bunching.....	lb	9.7	10.0	10.5	12.5	12.4	10.6
Broccoli (f & p).....	lb	n/a	5.4	5.5	9.0	11.6	11.8
Brussel Sprouts (f & p)....	lb	n/a	7.1	5.7	5.2	6.3	9.7
Cabbage (f & p).....	lb	38.3	35.4	35.6	35.4	37.8	34.9
Carrots, bunching.....	lb	12.1	11.2	11.4	13.4	12.5	10.1
Carrots, topped (f & p)....	lb	61.9	63.0	42.4	55.8	63.4	62.6
Cauliflower (f & p).....	lb	19.4	19.7	18.3	16.7	19.3	20.1
Celery (f & p).....	lb	59.8	73.9	72.4	73.4	65.3	65.4
Corn, sweet (f).....	doz	0.8	0.8	0.8	0.8	0.9	0.8
Corn, sweet (p).....	lb	9.2	10.3	9.9	10.3	10.3	9.2
Cucumber (f).....	lb	22.2	18.8	15.7	15.9	16.4	17.7
Cucumber (f & p).....	lb	16.8	17.9	17.3	18.1	19.2	18.2
Lettuce, head (f).....	doz	1.3	1.4	1.4	1.1	1.2	1.1
Onions: dry, sets	lb	19.8	20.8	22.5	14.2	20.2	16.4
Onions: dry, silverskin....	lb	9.8	8.7	8.8	9.2	10.1	10.1
Onions: dry, spanish.....	lb	23.7	22.5	20.9	23.9	29.6	26.8
Onions: dry, yellowskin....	lb	42.2	37.3	29.9	40.6	39.0	37.1
Onions, bunching.....	lb	15.3	14.3	15.9	16.5	14.9	13.6
Parsnips.....	lb	23.4	21.6	19.6	17.4	19.4	17.5
Peas, green (p).....	lb	2.9	3.2	3.3	3.3	3.2	2.0
Peppers (f & p).....	lb	9.7	11.4	8.7	10.6	11.4	11.4
Potatoes.....	lb	20.9	20.0	21.0	22.0	21.1	19.8
Pumpkin & Squash (p).....	lb	25.3	23.4	26.7	26.5	25.9	24.6
Radishes.....	lb	10.2	9.4	8.8	5.6	5.7	9.1
Rutabagas.....	lb	34.8	37.9	38.5	40.7	43.7	25.0
Spinach (f & p).....	lb	7.9	7.2	6.6	5.4	5.4	5.6
Tomatoes (f).....	lb	19.0	17.1	15.7	17.0	19.9	20.1
Tomatoes (p).....	lb	37.9	39.8	34.5	36.8	37.9	29.6

Note: (f) fresh; (f & p) fresh & processing; (p) processing; n/a not available.

Source: Seasonal Fruit and Vegetable Report, Annual Summary, Economics Branch,
Ontario Ministry of Agriculture and Food.

APPENDIX TABLE 2. AVERAGE PRICES (IMPERIAL UNITS) RECEIVED FOR VEGETABLES,
ONTARIO, 1978-1983.

Crop	Unit	1978	1979	1980	1981	1982	1983
- cents -							
Asparagus (f & p).....	lb	66.6	69.0	81.9	91.9	107.1	102.8
Beans, green & wax (f)....	lb	24.4	24.0	23.1	25.9	26.3	27.0
Beans, green & wax (p)....	lb	8.0	9.0	9.2	10.5	11.2	11.0
Beans, Lima (p).....	lb	17.5	18.6	20.0	25.6	23.6	23.0
Beets, topped.....	lb	3.7	3.2	3.4	4.3	4.6	5.0
Beets, bunching.....	lb	21.6	23.0	27.4	26.7	25.3	43.4
Broccoli (f & p).....	lb	n/a	15.6	27.5	32.5	28.6	34.2
Brussel Sprouts (f & p)...	lb	n/a	33.8	35.2	39.6	42.9	48.2
Cabbage (f & p).....	lb	5.2	4.9	7.0	6.2	5.4	9.8
Carrots, topped (f & p)...	lb	5.1	3.2	6.1	5.1	3.4	8.1
Carrots, bunching.....	lb	14.1	13.5	13.5	18.0	18.4	16.7
Cauliflower (f & p).....	lb	12.0	11.8	13.9	14.2	13.9	17.8
Celery (f & p).....	lb	9.4	5.9	7.6	9.1	8.5	13.6
Corn, sweet (f).....	doz	73.4	74.0	90.4	106.7	100.3	120.4
Corn, sweet (p).....	lb	2.5	2.7	2.9	3.5	3.7	3.8
Cucumber (f).....	lb	10.7	10.6	10.8	11.4	12.3	12.8
Cucumber (f & p).....	lb	8.7	9.0	8.1	8.4	10.2	9.6
Cucumber, greenhouse.....	doz	301.0	334.0	362.0	416.0	384.0	506.0
Lettuce, head (f).....	doz	222.0	180.0	246.0	329.0	271.5	347.7
Onions: dry, sets.....	lb	9.6	8.7	8.0	15.9	6.3	11.8
Onions: dry, silverskin...	lb	32.7	31.4	30.6	41.3	40.0	40.3
Onions: dry, spanish.....	lb	11.3	8.7	13.2	18.4	14.3	15.2
Onions: dry, yellowseed...	lb	4.5	4.8	10.2	7.8	4.4	11.0
Onions, bunching.....	lb	31.3	32.9	37.7	37.0	29.8	34.1
Parsnips.....	lb	11.1	11.1	15.3	19.3	14.0	16.0
Peas, green (p).....	lb	11.3	12.0	13.3	14.9	15.8	15.0
Peppers (f & p).....	lb	12.2	12.2	15.0	13.8	13.6	14.7
Potatoes.....	lb	4.0	3.2	7.9	6.2	4.4	7.8
Pumpkin & Squash (p).....	lb	1.2	1.4	1.5	1.6	1.7	2.0
Radishes.....	lb	20.4	20.5	21.8	22.4	21.6	26.3
Rutabagas.....	lb	4.1	3.8	5.8	4.9	4.2	7.1
Spinach (f & p).....	lb	19.4	19.9	20.0	25.3	23.5	29.8
Tomatoes (f).....	lb	16.9	15.6	16.3	18.2	17.6	20.5
Tomatoes, greenhouse.....	lb	41.8	45.4	45.2	46.5	52.7	60.8
Tomatoes (p).....	lb	4.1	4.3	4.5	5.0	5.3	5.1

Note: (f) fresh; (f & p) fresh & processing; (p) processing; n/a not available

Source: Seasonal Fruit and Vegetable Report, Annual Summary, Economics Branch,
Ontario Ministry of Agriculture and Food.

APPENDIX TABLE 3. AVERAGE YIELDS PER HECTARE FOR VEGETABLES, ONTARIO, 1978-1983.

Crop	1978	1979	1980	1981	1982	1983
- tonnes/ha -						
Asparagus (f & p).....	1.8	1.8	1.7	1.4	1.8	1.2
Beans, green & wax (f)....	6.9	6.4	5.8	6.1	6.4	6.3
Beans, green & wax (p)....	4.8	5.5	6.1	4.6	5.5	5.5
Beans, Lima (p).....	2.0	3.4	2.9	2.4	2.5	2.8
Beets, topped.....	28.8	30.7	32.0	28.9	30.5	28.6
Beets, bunching.....	10.9	11.3	11.7	14.0	13.9	11.9
Broccoli (f & p).....	n/a	6.0	6.2	10.1	13.0	13.2
Brussel Sprouts (f & p)...	n/a	7.9	6.5	5.8	7.1	10.9
Cabbage (f & p).....	42.9	38.4	39.9	39.7	42.4	38.1
Carrots (bunching).....	13.6	12.7	12.6	15.0	14.0	11.3
Carrots, topped, (f & p)..	69.4	65.5	38.7	62.5	71.1	70.2
Cauliflower (f & p).....	21.7	22.0	20.5	18.7	21.6	22.5
Celery (f & p).....	67.0	82.7	81.1	82.2	73.2	73.3
Corn, sweet (f).....	5.4	5.6	5.5	5.6	6.1	5.5
Corn, sweet (p).....	10.3	11.8	11.1	11.5	11.6	10.3
Cucumber (f).....	24.9	21.1	17.6	17.8	18.4	19.8
Cucumber (f & p).....	18.8	20.1	19.4	20.3	21.5	20.4
Lettuce, head (f).....	21.8	23.3	23.6	18.0	19.9	16.5
Onions, dry, sets.....	22.2	23.2	25.2	15.9	22.6	18.4
Onions, dry, silverskin...	10.9	9.9	9.9	10.4	11.3	11.3
Onions, dry, spanish.....	26.7	22.4	23.9	26.8	33.2	28.1
Onions, dry, yellowskin...	47.3	34.3	33.5	45.5	43.7	41.6
Onions, bunching.....	17.2	16.0	17.8	18.5	16.7	17.9
Parsnips.....	26.2	17.5	21.8	17.4	21.7	19.6
Peas, green (p).....	3.3	3.6	3.7	3.7	3.5	2.2
Peppers (f & p).....	10.9	12.9	9.7	11.9	12.8	12.4
Potatoes.....	23.4	19.3	23.5	24.7	23.7	22.2
Pumpkin & Squash (p).....	28.4	26.2	30.0	29.7	29.0	27.6
Radishes.....	11.4	10.5	9.9	6.3	6.4	10.2
Rutabagas.....	39.0	34.7	43.1	45.6	49.0	27.8
Spinach (f & p).....	8.9	8.1	7.4	6.1	6.1	6.3
Tomatoes (f).....	21.3	19.1	17.4	19.1	22.3	22.5
Tomatoes (p).....	42.5	44.6	38.7	41.2	42.6	33.2

Note: (f) fresh; (f & p) fresh & processing; (p) processing; n/a not available

Source: Seasonal Fruit and Vegetable Report, Annual Summary, Economics Branch, Ontario Ministry of Agriculture and Food.

APPENDIX TABLE 4. AVERAGE PRICES (METRIC UNITS) RECEIVED FOR VEGETABLES,
ONTARIO, 1978-1983.

Crop	1978	1979	1980	1981	1982	1983
- ¢/kg -						
Asparagus (f & p).....	146.8	152.1	180.6	202.5	236.1	226.7
Beans, green & wax (f)....	53.8	52.9	50.9	57.0	57.9	59.4
Beans, green & wax (p)....	17.6	19.8	20.3	23.2	24.6	24.3
Beans, Lima (p).....	38.6	41.0	44.1	56.5	52.0	50.7
Beets, topped.....	8.2	7.1	7.5	9.5	10.2	11.0
Beets, bunching.....	47.6	50.7	60.4	58.8	55.8	95.6
Broccoli (f & p).....	n/a	34.4	60.6	71.6	63.1	75.4
Brussel Sprouts (f & p)...	n/a	74.5	77.6	87.4	94.5	106.4
Cabbage (f & p).....	11.5	10.8	15.4	13.6	12.0	21.7
Carrots, topped (f & p)...	11.2	7.1	13.4	11.2	7.4	18.0
Carrots, bunching.....	31.1	29.8	29.8	39.5	40.6	36.8
Cauliflower (f & p).....	26.5	26.0	30.6	31.2	30.6	39.3
Celery (f & p).....	20.7	13.0	16.8	20.1	18.8	30.0
Corn, sweet (f).....	27.0	27.2	33.2	39.2	36.8	44.6
Corn, sweet (p).....	5.5	6.0	6.4	7.7	8.2	8.4
Cucumber (f).....	23.6	23.4	23.8	25.2	27.1	28.1
Cucumber (f & p).....	19.2	19.8	17.9	19.8	22.5	21.2
Cucumber, greenhouse.....	82.9	92.1	99.8	114.6	105.9	139.4
Lettuce, head (f).....	32.6	26.5	36.2	48.4	39.9	51.1
Onions: dry, sets.....	21.2	19.1	17.7	35.1	14.0	25.9
Onions: dry, silverskin...	72.0	69.3	67.4	91.1	88.3	88.7
Onions: dry, spanish.....	24.8	19.2	29.0	40.6	31.5	32.6
Onions: dry, yellowseed...	9.9	10.6	22.4	17.2	9.8	24.2
Onions, bunching.....	69.0	72.5	83.1	81.6	65.8	75.3
Parsnips.....	24.6	24.5	33.7	42.5	31.0	35.3
Peas, green (p).....	24.9	26.5	29.3	32.8	34.8	33.1
Peppers (f & p).....	26.9	26.9	33.1	30.4	30.0	32.4
Potatoes.....	8.8	7.1	17.4	13.6	9.8	17.2
Pumpkin & Squash (p).....	2.6	3.1	3.3	3.5	3.7	4.4
Radishes.....	45.0	45.2	48.1	49.4	47.6	58.0
Rutabagas.....	9.0	8.4	12.8	10.8	9.2	15.7
Spinach (f & p).....	42.8	43.9	44.1	55.8	51.7	65.8
Tomatoes (f).....	37.2	34.4	35.9	40.1	38.8	45.3
Tomatoes, greenhouse.....	92.2	100.1	99.6	102.5	116.3	134.0
Tomatoes, (p).....	9.0	9.5	9.9	11.0	11.8	11.2

Note: (f) fresh; (f & p) fresh & processing; (p) processing; n/a not available.

Source: Seasonal Fruit and Vegetable Report, Annual Summary, Economics Branch,
Ontario Ministry of Agriculture and Food.